Remarks

In the Office Action dated April 29, 2010, the Examiner rejected claims 1, 6, 7, 9, 11, 16, 17, 19 and 20 under 35 U.S.C. § 102 as being anticipated by U.S. Published Patent Application in the name of Harrington et al. 2002/0077710. The Examiner rejected claims 2-4 and 12-14 under 35 U.S.C. § 103 as being unpatentable over Harrington et al. in view of U.S. Published Patent Application in the name of Tajima 2001/0002924. The Examiner rejected claims 5 and 15 under 35 U.S.C. § 103 as being unpatentable over Harrington et al. in view of U.S. Patent in the name of Schuur 5,590,157. The Examiner rejected claims 8 and 18 under 35 U.S.C. § 103 as being unpatentable over Harrington et al. in view of U.S. Published Patent Application in the name of Thompson 2002/0045920. The Examiner rejected claim 10 under 35 U.S.C. § 103 as being unpatentable over Harrington et al.

Each of the independent claims 1, 11 and 20 have been amended to require that: (1) the frequency of the local clock time-base is substantially higher than the carrier frequencies to digitally measure periods of each received half cycle of the FSK carrier signal; and (2) the demodulator can discriminate between carrier frequencies regardless of data rate.

Harrington et al. have a digital receiver with two complementary buffer paths A/B that operate on alternate sample periods as noted at paragraph [0041] of Harrington et al. This means that the demodulator fails to generate a coherent serial data bit stream and instead has two separate samplers that can individually detect the two frequencies if the receiver integration time is long enough, which in turn translates to a very slow data rate.

Using the demodulation technique proposed by Harrington et al., it is not possible to achieve a high data rate. Because they suggest using two carrier frequencies that are close together, and the local oscillator frequency is the subtraction of those two frequencies. This means that the local oscillator operates at a frequency that is several times (an order of magnitude) lower than either one of the two FSK frequencies. This is needed in order to see several rising edges of the incoming carrier during one period of the local oscillator.

Harrington et al.'s demodulator only works based on two carrier frequencies that are close to one another. Because their subtraction, the frequency of the local oscillator should be at much lower frequency of either one of those frequencies. If one frequency is twice as the other, the difference will be the same as the lower frequency and violates that requirement. Therefore, Harrington's demodulator will not work because the demodulator does not see any rising edges of the lower carrier signal during one period of the local oscillator clock.

Harrington et al. use a constant clock frequency much "lower" than the two carrier signal frequencies (their difference), and counts the rising edges of carrier cycles within one clock period. If someone increases the clock frequency hoping that it will increase the data rate, as the examiner suggests, the only thing that will happen is that there will be less and less rising edges of the carrier within every cycle of the local clock to the extent that the demodulator can no longer discriminate and distinguish between the two carrier frequencies of the incoming FSK signal. Furthermore, as indicated in paragraphs [0007], [0040] and [0052] of Harrington et al. because battery life is an important concern of Harrington et al. reduced clock frequency is an important feature of Harrington et al.

The comments contained in the Amendment dated October 30, 2009 are incorporated by reference herein.

Consequently, in view of the above and in the absence of better art, Applicants' attorney respectfully submits the application is in condition for allowance which allowance is respectfully requested.

Please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

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